

Notice of Allowability	Application No.	Applicant(s)	
	10/749,606	RO ET AL.	
	Examiner	Art Unit	
	Quochien B. Vuong	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/30/2003.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>12/30/03, 10/18/05</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
|---|--|

Reasons for Allowance

1. Claims 1-9 are allowed over the cited prior art.
2. The following is an examiner's statement of reasons for allowance:

Regarding independent claims 1 and 6, Otsuka (JP 09-107226) discloses a microstrip patch antenna (figure 1) comprising: a radiation patch (46) connected to a feeder (48) and a parasitic patch layered on a dielectric substrate (38). Kuramoto et al. (US 5,977,710) disclose microstrip patch antenna (figure 1A) comprising: a radiation patch (4), ground surface (6), parasitic patch and dielectric layer (5) (column 1, line 38 – column 2, line 18; and column 2, line 46 – column 3, line 36). And Egashira et al. ("Stacked Microstrip Antenna with Wide Bandwidth and High Gain," IEEE Transactions on Antenna and Propagation, Vol. 44, No. 11, November 1996, pp. 1533-1534) disclose a three-element stacked antenna with two parasitic elements for wide bandwidth and high gain. However, Otsuka, Kuramoto et al., and Egashira et al. do not disclose the structure and function of each layer of the claimed invention which recites a first patch antenna layer including a ground surface and a first dielectric layer for radiating a energy supplied from transmitting/receiving feeding circuit and a first radiation patch electrically coupled to the first dielectric layer and supplying the energy to a receiving feeding circuit electrically coupled with the first radiation patch, wherein the energy is supplied by electromagnetic coupling of a first parasitic patch and second parasitic patch; a second patch antenna layer including a second dielectric layer and third dielectric layer for improving impedance bandwidth of energy received through the first parasitic patch arranged in between the second dielectric layer and the third dielectric

Art Unit: 2618

layer and radiating the improved impedance bandwidth; and a third patch antenna layer including a fourth dielectric layer and fifth dielectric layer for improving a gain of the energy received through the second parasitic patch arranged in between the fourth dielectric layer and the fifth dielectric layer.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on 12/30/2003 and 10/18/2005 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cavallaro et al. (US 5,008,681) disclose microstrip antenna with parasitic elements.

Pett et al. (US 5,382,959) disclose broadband circular polarization antenna.

Phillips et al. (US 5,572,223) discloses apparatus for multi-position antenna.

Buralli et al. (US 5,576,718) disclose thin broadband microstrip array antenna having active and parasitic patches.

Heckaman (US 6,421,012) discloses phase array antenna having patch antenna elements with enhanced parasitic antenna element performance at millimeter wavelength radio frequency signals.

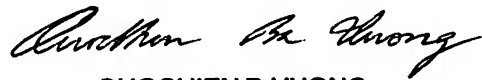
Saliga et al. (US 6,759,986) disclose attacked patch antenna.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quochien B. Vuong whose telephone number is (571) 272-7902. The examiner can normally be reached on M-F 9:30-18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2618

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



QUOCHIE B. VUONG
PRIMARY EXAMINER

Quochien B. Vuong
April 01, 2006.